

Amendments to the Claims:

Claims 1, 10, 16, 20, and 23 have been amended herein. Claims 31 through 36 are newly added with this amendment. Please note that all claims currently pending and under consideration in the referenced application are shown below. Please enter these claims as amended. This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Currently Amended) A semiconductor device handling apparatus comprising:
a first plate having a first opening therethrough;
a second plate having a first opening therethrough, the first opening of the second plate being substantially aligned with the first opening of the first plate; and
a first flexible membrane disposed between the first and second plates for receiving a first fluid pressure adjacent the first opening of the first plate for causing the first flexible membrane to extend outwardly through the first opening of the second plate to immobilize at least one semiconductor device moving adjacent thereto by said first flexible membrane having a portion thereof substantially conforming to a surface of the at least one semiconductor device, the surface of the at least one semiconductor device including one surface of a surface having conductive elements thereon and a surface opposite a surface having conductive elements thereon.
2. (Original) The apparatus according to claim 1, wherein the first flexible membrane comprises one of latex and a rubber.
3. (Original) The apparatus according to claim 1, wherein the first flexible membrane is configured to contact at least one of a plurality of conductive elements on the at least one semiconductor device.

4. (Previously presented) The apparatus according to claim 1, further comprising a second opening in the first plate substantially aligned with a second opening in the second plate wherein a second flexible membrane is disposed between the first and second plates and configured to receive a second fluid pressure adjacent the second opening of the first plate and to extend outwardly through the second opening of the second plate to contact and immobilize at least one other semiconductor device moving adjacent to the second flexible membrane.

5. (Previously presented) The apparatus according to claim 1, further comprising a second opening in the first plate substantially aligned with a second opening in the second plate wherein a second flexible membrane is disposed between the first and second plates and configured to receive a second fluid pressure adjacent the second opening of the first plate and to extend outwardly through the second opening of the second plate to contact at least one other semiconductor device.

6. (Previously presented) The apparatus according to claim 5, wherein the second flexible membrane is configured to reposition the at least one other semiconductor device upon contact therewith.

7. (Previously presented) The apparatus of claim 1, wherein the first flexible membrane is further configured to separate the at least one semiconductor device from at least one other semiconductor device.

8. (Original) The apparatus of claim 1, wherein the first flexible membrane is configured to extend outwardly at an angle substantially perpendicular with a planar surface of the second plate.

9. (Original) The apparatus of claim 1, wherein the first flexible membrane is configured to extend outwardly at an angle not perpendicular with a planar surface of the second plate.

10. (Currently Amended) A handling apparatus for handling IC components comprising:

a first flexible membrane configured to receive an applied fluid pressure on a surface thereof and to expand to contact and immobilize at least one IC component moving adjacent thereto by said first flexible membrane having a portion thereof substantially conforming to a surface of the at least one IC component, the surface of the at least one IC component including one surface of a surface having conductive elements thereon and a surface opposite a surface having conductive elements thereon; and

a second flexible membrane configured to receive an applied fluid pressure on a surface thereof and to expand to contact and immobilize at least one other IC component moving adjacent to the second flexible membrane by said second flexible membrane having a portion thereof substantially conforming to a surface of the at least one other IC component, the surface of the at least one IC component including one surface of a surface having conductive elements thereon and a surface opposite a surface having conductive elements thereon.

11. (Original) The apparatus according to claim 10, wherein the first flexible membrane comprises one of latex and rubber.

12. (Previously presented) The apparatus according to claim 10, wherein the second flexible membrane is configured to contact at least one of a plurality of conductive elements located on the at least one other IC component.

13. (Previously presented) The apparatus according to claim 10, wherein the second flexible membrane is configured to receive a second applied fluid pressure on a surface thereof and to expand to contact the at least one other IC component.

14. (Original) The apparatus according to claim 13, wherein the second flexible membrane is configured to separate at least two IC components.

15. (Previously presented) The apparatus of claim 10, wherein the first flexible membrane is further configured to separate the at least one IC component from the at least one other IC component.

16. (Currently Amended) An IC device handler comprising:
an input location for receiving a plurality of IC devices;
a pathway along which the IC devices are advanced from the input location;
a first flexible membrane to receive an applied fluid pressure on a surface thereof and to contact at least one of the plurality of IC devices to stop the advancement thereof by said first flexible membrane having a portion thereof substantially conforming to a surface of an IC device, the surface of the IC device including one surface of a surface having conductive elements thereon and a surface opposite a surface having conductive elements thereon;
and
a second flexible membrane configured to receive an applied fluid pressure on a surface thereof and to contact at least one of the plurality of IC devices to stop the advancement thereof by said second flexible membrane having a portion thereof substantially conforming to a surface of another IC device, the surface of the another IC device including one surface of a surface having conductive elements thereon and a surface opposite a surface having conductive elements thereon.

17. (Original) The handler of claim 16, wherein the pathway comprises a gravity fed track.

18. (Previously presented) The handler of claim 16, further comprising a processing station adjacent the first flexible membrane wherein the plurality of IC devices are advanced through the processing station via the pathway.

19. (Original) The handler of claim 16, wherein the processing station includes at least one of a testing device and a die marking device.

20. (Currently Amended) An automated IC device handler comprising:
an input location for receiving a plurality of IC devices;
a pathway along which the IC devices are advanced from the input location;
a first flexible membrane configured to receive an applied fluid pressure on a surface thereof and
to contact at least one of the plurality of IC devices to stop the advancement of the at least
one of the plurality of IC devices by said first flexible membrane having a portion thereof
substantially conforming to a surface of an IC device, the surface of the IC device
including one surface of a surface having conductive elements thereon and a surface
opposite a surface having conductive elements thereon; and
a second flexible membrane configured to receive an applied fluid pressure on a surface thereof
and to contact at least one other of the plurality of IC devices to stop the advancement of
the at least one other of the plurality of IC devices by said second flexible membrane
having a portion thereof substantially conforming to a surface of another IC device, the
surface of the another IC device including one surface of a surface having conductive
elements thereon and a surface opposite a surface having conductive elements thereon.

21. (Previously presented) The handler of claim 20, further comprising a processing
station adjacent the first flexible membrane wherein the plurality of IC devices are advanced
through the processing station via the pathway.

22. (Original) The handler of claim 20, wherein the processing station includes at
least one of a testing device and a die marking device.

23. (Currently Amended) A method of handling IC devices comprising:
advancing a plurality of IC devices along a predetermined path;
providing a first flexible membrane adjacent the predetermined path;
providing a second flexible membrane adjacent the predetermined path;
applying a fluid pressure to a surface of the first flexible membrane such that the first flexible
membrane extends towards the predetermined path;

contacting at least one of the plurality of IC devices with the first flexible membrane and immobilizing the at least one of the plurality of IC devices, said first flexible membrane having a portion thereof substantially conforming to a surface of an IC device, the surface of the IC device including one surface of a surface having conductive elements thereon and a surface opposite a surface having conductive elements thereon; and applying a fluid pressure to a surface of the second flexible membrane such that the second flexible membrane extends towards the predetermined path.

24. (Original) The method of claim 23, wherein contacting the at least one of the plurality of IC devices includes contacting at least one of a plurality of conductive elements located on the at least one of the plurality of IC devices.

25. (Previously presented) The method of claim 23, wherein providing the first flexible membrane includes a first and a second flexible membrane.

26. (Previously presented) The method of claim 25, further comprising contacting at least one other of the plurality of IC devices with the second flexible membrane.

27. (Previously presented) The method of claim 23, wherein applying the fluid pressure to the surface of the first flexible membrane comprises applying a fluid pressure to the surface of the first flexible membrane for contacting and immobilizing the at least one of the plurality of IC devices and wherein the method further comprises applying the fluid pressure to the surface of the second flexible membrane such that the second flexible membrane contacts and repositions the at least one of the plurality of IC devices subsequent to the immobilization thereof.

28. (Original) The method of claim 27, further comprising releasing the applied fluid pressure.

29. (Previously presented) The method of claim 27, further comprising advancing the at least one of the plurality of IC devices along the predetermined path and away from the first flexible membrane subsequent to release of the applied fluid pressure.

30. (Previously presented) The method of claim 29, further comprising reapplying fluid pressure to the surface of the first flexible membrane and contacting and immobilizing at least one other of the plurality of IC devices subsequent to the release of the applied fluid pressure.

Please add the following new claims:

31. (New) A semiconductor device handling apparatus comprising:
a plate having a first opening therethrough; and
a first flexible membrane attached to a portion of said plate adjacent the first opening for receiving a first fluid pressure adjacent the first opening of the first plate for causing the first flexible membrane to extend outwardly to immobilize at least one semiconductor device moving adjacent thereto by said first flexible membrane having a portion thereof substantially conforming to a surface of the at least one semiconductor device, the surface of the at least one semiconductor device including one surface of a surface having conductive elements thereon and a surface opposite a surface having conductive elements thereon.

32. (New) The apparatus according to claim 31, wherein the first flexible membrane comprises one of latex and a rubber.

33. (New) The apparatus according to claim 31, wherein the first flexible membrane is configured to contact at least one of a plurality of conductive elements on the at least one semiconductor device.

34. (New) The apparatus according to claim 31, further comprising a second opening in the plate having a second flexible membrane attached adjacent thereto to receive a second fluid pressure adjacent the second opening of the first plate to extend outwardly through the second opening of the second plate to contact and immobilize at least one other semiconductor device moving adjacent to the second flexible membrane.

35. (New) The apparatus according to claim 34, wherein the second flexible membrane is configured to reposition the at least one other semiconductor device upon contact therewith.

36. (New) The apparatus of claim 31, wherein the first flexible membrane is further configured to separate the at least one semiconductor device from at least one other semiconductor device.